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THE JOURNAL OF PHILOSOPHY

THE LOGIC OF SEMANTICS[1]

I

FOR a sign to be used the mind must be put to work. But the work of the mind is the drawing of conclusions. To use a sign is to infer.

Inferences are of two kinds: necessary and contingent. Necessary inference is inference which occurs when and only when one reasons in conformity with the schemata of logic. It takes place when that which is initially accepted, the premise, is sufficient to warrant that which is thereupon accepted, the conclusion—if, in short, the premise is related to its conclusion by a logical relation of necessity. In that case, the act of inference is the justifiable act of adopting the conclusion in place of and because of the premise.

An inference is contingent if the relation between the accepted starting point and adopted terminus is capable of denial. The premise in such a case is not sufficient to yield and warrant the conclusion. In a contingent inference, in short, we substitute the conclusion for the premise partly because of considerations not expressed in the premise. The conclusion "it will rain" is obtained from the premise "the sky has begun to darken" by virtue of the use of some such contingent principle as "if the sky darkens, there will be rain." If we add this principle to the premise we convert the contingent inference into a necessary one, for our premise will then contain all that is required to warrant the conclusion. Conversely, we turn a necessary inference into a contingent one by converting part of the premise into a principle of inference, establishing our conclusion by virtue of some contingent fact not contained in the premise.

Of these two modes of inference, the contingent is the more original, the more common, and more basic. It is doubtful, in fact, whether the mind, in any vital process of inference, ever obtains premises sufficiently complete as to require no contingent principle

[1] A contribution to the symposium on "The Relation of Sign to Object Signified" held at the meeting of the Eastern Division of the American Philosophical Association, December 30, 1941, at Vassar College.

in order to obtain the conclusion. Logical inference seems to be an ideal rather than a fact, though occasionally approached and imitated in the postulate systems which logicians occasionally offer as portraits of the nature of mathematical thought.

We do not, however, as a rule, speak of the objects of memory, expectation, designation, signification, etc., as conclusions, and do not therefore view these processes as modes of inference. For this five reasons might be given.

First, we are accustomed to think of conclusions as logically necessitated. This, however, is little more than the result of the pressure of specialists. Ordinary men constantly "conclude" and say they do, where logicians would see only inadequately grounded results, unworthy of the name "conclusion." To draw a conclusion, it is not necessary that the premise should necessitate the conclusion; the structure and content of the process of drawing the conclusion can also contribute to the determination of the conclusion.

Secondly, we do not affirm but rather entertain or dwell on the results of many contingent inferences. We are inclined to view conclusions as results to which we deliberately reason, rather than as momentary points of rest to which the mind attains through the conjoint use of a contingent premise and a contingent principle of inference. Yet it is a rare conclusion that is reasoned to deliberately; most of our intellectual results, even those widely acclaimed as the termini of inferences, are obtained without preparation and are rarely dwelt upon.

Thirdly, men are not, as a rule, conscious of the nature of the contingent principles of inference which govern their reasoning. But the fact that they are not conscious of them, does not mean that these principles are not operative. A contingent principle of inference is a kind of habit, and usually operates as unnoted and as effectively as does the habit of speaking when spoken to.

Fourthly, we think of premises and conclusions as propositions which may be true or false and hesitate to speak of a single term as a premise or a conclusion. Yet what is a term but a proposition partially filled out, a propositional form only partly completed, an affirmation in the shape of a question? The unit of discourse is the proposition and wherever we have an isolated term there we have a proposition complete in structure if not in content.

Fifthly, we are inclined to speak of conclusions as productions of the mind and not as independent realities at which the mind might arrive. The objects of propositions and the designated objects of signs are rarely those made by man; nevertheless we conclude to them, coming upon them as a result of inference. We can, there-

fore, appropriately term them "conclusions," if by that we do not mean they are constituted by the mind, or exist only in it or because of it.

As a consequence of this quintuple disinclination to recognize as a conclusion that to which we actually conclude, we—particularly if we are logicians—are tempted to speak as if there were two minds in man. We speak as if we were in possession of a divine, pure reason, which necessarily and alone moved noiselessly and perfectly from premise to conclusion, and as if we had, in addition, an imperfect, psychological, and human mind which haltingly and illegitimately hopped from one detached idea to another. But there is only one mind, making use of countless implicit and contingent principles of inference, and only occasionally employing an explicit one, and perhaps never a necessary one.

It would be interesting to develop this point at length, making evident how the acts of perception and imagination, of association and memory, of misjudgment and evaluation are to be understood as involving the use of contingent principles of inference. But this would take us too far afield, even though these activities are pertinent to the problem of this symposium of the nature of signs and the way they can be used to signify and designate objects. It is sufficient for our purpose if the foregoing discussion has made plausible the view that the processes of signifying and designating are processes of inference, for we will then no longer have need to resort to miracle or irrational powers in order to account for the way signs can serve to signify and designate what is distant from and alien to them.

II

Nothing is a sign until mind intervenes. Where signs are, there mind also is. Apart from mind, clouds are not a sign of rain; they merely precede them. Apart from mind, words are not a sign of thoughts; they merely follow them. Apart from mind, words are not signs of things; they merely occur in the same world with them. It takes a mind to make one thing signify or designate another.

How about the unconscious? Does the author include that in mind?

Anything which functions as a premise is a sign; every sign is, as a signifying or designating entity, a premise. If the conclusion is another sign, the inference is a syntactical one; if the conclusion is an object, the inference is semantical. The problems which concern the one are in principle those which concern the other discipline as well.

Now it is easy to show that an endless number of conclusions are derivable from any premise. Every sign, so far as it is a premise, should therefore have an endless number of conclusions, in the shape

of objects or signs. Leaving aside the question of the relation of signs to signs, there would seem to be a countless number of possible objects which a sign might be used to designate. Yet there are some signs for which there are no objects, some signs for which there is but one object, and some signs for which there are only a limited number of objects. If an endless number of conclusions are derivable from any premise, while some signs have none and others have only one or a few objects to designate, all or most of the possible conclusions from such signs must have been antecedently ruled out as improper.

It might be argued that these have been ruled out by virtue of the nature of the sign itself. A proper name, it might be said, has by definition one and only one object, while common nouns, predicates, and relational terms signify characters correlative to many designatable objects.

But this answer will not do. "Othello" is just as much a proper name as "Roosevelt," but the latter has an appropriate existent object and the former not. "Man," "sky," and "centaur" are similar terms, yet the first is a predicate for many objects, the second for only one, and the third for none at all. A knowledge of the premise does not help determine the number or character of the actual objects to which one can conclude from a given sign. If we define our sign to be a proper name, we can decide that there is at most one object for it. But we will not then know whether it has an object in fact, or just what that object is. Yet, as a rule, when we use signs we know which ones have objects in fact, and where and how these are to be found.

Given nothing but signs, we do not know if there are any, how many, or which objects they serve to designate. No matter how precise our grammatical or semantical rules, if all we know are signs, we can not know if they have objects or what those objects are. But if the premise is not an adequate guide to the number or kind of conclusions to be derived, what other guide is there but the conclusions themselves? We have, and must have, antecedent knowledge about the objects we seek to approach through the medium of signs; that is why we can limit the kinds and number of inferences that we draw from those signs.

It is because I know that this is a symposium and that there are two other participants, that I can and do use the name "fellow symposiasts" to refer to them and them alone. Because I have seen a late draft of their papers I know that I can use the characterization "eminent logicians who disagree with one another" in such a way as to apply to them and them alone. On all sides, I think it is agreed that we have no problem here. To use a sign so

that it refers to specific objects of our acquaintance all we need do is to move from the object to its substitute, then reverse the course of our original inference and thereby conclude to the objects with which we began.

In addition, however, to signs which function as demonstratives or names, and as characterizations or predicates, there is another neglected but large and heterogeneous class of signs which may be termed "metaphysicals." This class includes such terms as "is," "and," "or," most metaphors, works of art, and the metaphysical categoreals, "being," "substance," "causality," etc. The latter and some of the former refer to objects of acquaintance—in fact to what is encountered by everyone every minute of the day. Syntactically viewed they may appear in discourse as names, predicates, as connectives between them, or as components of larger signs. Semantically viewed they function as signs of the concrete being of which the object of the name and the object of the predicate are aspects. When, for example, we say "this is red," we do not mean that it is the object as a "this" which is red, but that an object, referred to by the "is," is the source and locus of the referents of the "this" and the "red."

III

Denotatives, metaphysicals, and predicates are used, not only of signs of objects with which we are acquainted, but for objects we do not now encounter and may never have encountered. But if it is true, as we have maintained, that we must first know something about the objects of signs in order to designate those objects, we seem to be caught in a dilemma. On the one hand, we must have antecedent knowledge of the objects designated by our signs; yet we designate objects which we have never encountered.

This dilemma has a three-fold significance, depending on whether the object to which we refer is (*a*) one we know is real though not available for a direct encounter—a denoted William James, his aberrant genius, or his substance; (*b*) is one which we know does not exist—Mr. Pickwick, the round-square, or the heart of politics; (*c*) is one about whose existence I am not sure—my soul, its nature, or the substantial being of nothingness.

(*a*) Dr. Ushenko, who is acutely aware of the dilemma, apparently thinks it applies only to the first group. In that connection he offers an ingenious solution. It is his contention that when we refer to an absent object we really refer to other terms which function as objectives for the former. But this answer is nothing more than a device for deferring the problem. Either we

refer to William James as he exists outside our discourse or we refer to a term which stands for him. In the former case the objective of reference is outside discourse and we have to face again the question as to how we can refer to it; in the latter case, we refer not to James but to a sign which might be used to refer to him, in which case we will be faced with our dilemma over again. When we refer to historic or distant objects we refer not to a sign of them, but to the objects, and then only because we know something about them in advance.

The name "William James"—and this perhaps is what Dr. Ushenko was intending to remark—is now capable of designating him only through the help of other signs. It refers to the terminus of an inference which, starting from present memories or writings, directs us to attend to a unique occurrence in the past. We do not get in contact with James in this way; what we do is to refer to him and him alone as at a time we can not enter. But it is because we once knew him, or because we now know that our present data points to him as located at a different time, that we can now use our memories and his writings as premises for an inference which terminates in him and no one else. We can refer to his genius in the same way, and combine the latter with the former to form a metaphysical sign of his striking personality.

Unless by denotation we mean an act which brings us in contact with its object, we can denote absent objects by incorporating in the body of our inferences instructions on the way to use present names, predicates, and metaphysicals so that they terminate in unique situations, the uniqueness at least of which we antecedently knew.

(*b*) Designating signs for which there are no corresponding existents are "metaphysicals," referring to potencies, i.e., to something undetermined but objective. "The round-square," for example, viewed as a designating sign, is a sign of a region of space as possessed of no determinate shape. When we say with the logicians that "the shape of the round-square is round" what we are really saying is that the indeterminate region has been made determinate in one possible way.[2] Similarly, when we use the name "Mr. Pickwick" we designate an indeterminate aspect of man. The story of Mr. Pickwick is one way of arbitrarily but plausibly determining that indeterminate aspect.[3] The work of artists in

[2] The metaphysical in this expression is "round-square is." Its referent is the indeterminate region which is being arbitrarily specified as "shaped" and "round."

[3] The name "Mr. Pickwick" in the story does not name any man. It is the name of those potencies which are common to all men and which the story

marble, words, and paint is primarily a work of providing plausible determinations for the potencies which constitute an indeterminate aspect of something real.

Like most metaphysicals, "round-square" and "Mr. Pickwick" function in the context of discourse as syncategorematic terms, incomplete symbols like "all," "but," "if," etc., which combine with others so as to form a single sign. If we forget the world which served as a premise for our signs and look at those signs only in the context of discourse, we are bound to overlook the metaphysical rôle these syncategorematic terms actually perform. As a consequence we will be inclined to view metaphysical terms, connectives, fictions, and metaphors either as literal signs of non-entities or as not signs at all. But if we are right, they are signs, and usually of what is real here and now.

(*c*) In addition to signs which refer to absent existents and those which, taken literally, have no correspondent determinate objects, there are signs which intend objects of whose existence we are not sure. As philosophers we can leave the problem of the designation of protons, neutrons, positrons, etc. to the physicists themselves; they have evidence enough apparently for their purpose to satisfy themselves that there certainly are such entities, and that they are designatable in somewhat the same way as William James and Princeton now are, through the use of instructions on how to infer from macroscopic signs here and now.

Our business is to face philosophic problems. One such problem is the problem of speaking of the soul, particularly if we are not sure whether or not there is such an entity. If I do not know whether or not I have a soul, I have not, to my knowledge, encountered it, and my present data do not lead me to it. I can not use "my soul" as a name, for I do not know what to designate by means of it; I can not use it as a metaphysical, for I am not sure that it is intended to refer to my present being so far as that is potential and indeterminate. Logicians tell us to use it as a predicate, as a shorthand for "being mine and having the nature of a soul," and then look around for a subject to which that predicate might apply. But how can I follow this advice if what I am seeking is my soul as designatable, for which "my soul" can serve as a name? When I say that "my soul is immortal," I am not saying that there may be an "it" which has the properties of being soul-like, mine and immortal, but that there is something

limits and specifies in one possible and plausible way. When we say "Mr. Pickwick's beliefs are hard to change," we use "Mr. Pickwick" as a metaphysical for the potencies, of which "beliefs" and "hard to change" are arbitrary determinations connected by "are."

which is designatable as "my soul" and has the property of being immortal.

If I am in doubt whether a sign has a referent in fact and yet insist on using it as a designating name, I must take it to name a problematic situation with which I am antecedently acquainted. The sign "my soul," so far as I am in doubt as to whether or not there is a referent for it as a single entity, is the proper name for a set of activities which I can not now account for as produced by my body or mind. Should I eventually discover that those activities uniquely converge, I can use the term as a proper name of the object to which those activities converge, as a characterization of the process of convergence, or as a metaphysical which designates the substantial unity of the objects of the other two. If I find, on the contrary, that I can explain all my activities in physiological, psychological, and sociological terms, I can retain the sign as a metaphysical, using it to refer to the substantial unity of all the data or to the potency which makes further data possible. When I am in doubt, in short, I name the locus of my doubt. As inquiry proceeds the name changes its function to become instead a name of a different object, a characterization or a metaphysical, depending on what the inquiry reveals the object to be in fact.

Dr. Nagel, who so clearly recognizes that some signs can designate problematic situations, does not, surprisingly, seem to recognize that signs can change their functions in the course of inquiry. Signs usually have different referents at the beginning from what they have at the end of an investigation. Using his own example, and overlooking his bias towards finite quantities, I should think he ought to say that the $\sqrt{2}$ has one meaning before he begins investigating and another after he has finished. He ought, in fact, to go further and assert that it has a different meaning in different physical contexts and at different epochs. If it had to have one fixed and unalterable meaning, there is no reason why he should not accept the value which mathematicians assign to it. But in that case, Dr. Nagel's problem would be one of providing a semantics for all mathematics, whether or not the numbers which the mathematician provides are finite or transcendental, rational or irrational, and whether or not he provides any numbers at all.[4]

[4] No one of us in this symposium has dealt with the semantics of mathematics. The problem is very complicated. But perhaps it will suffice for the present to remark that most of the terms in mathematics seem to be syncategorematic, and that it is the mathematical expressions as a whole which alone, as a rule, have any counterpart.

IV

To summarize: We start with a direct acquaintance with some objects and an indirect knowledge of others. To deal with them easily and readily we substitute verbal and other readily manipulatable entities for them, coming back to the objects by means of highly limited and specific modes of inference. The signs we provide are of three kinds, but just which kind a given sign is, is impossible to determine by noting its syntactical rôle. A syntactical name can function as a denotative term, as a sign of a character or as a metaphysical; syntactical predicates and connectives can also take any one of the three possible semantical rôles. Everything depends upon what the referent is with which the mind is concerned. The relation of sign to object is a relation of inference, the converse of a prior and presupposed movement from object to sign.

PAUL WEISS.

BRYN MAWR COLLEGE.

OPERATIONAL ANALYSIS AS AN INSTRUMENT FOR THE CRITIQUE OF LINGUISTIC SIGNS[1]

I

THE mounting number of recent books devoted to the analysis of the language of political and social discussion testifies to the presence in ordinary speech of expressions which apparently denote nothing in the social scene. And it has frequently been noted that the natural sciences also employ terms which do not seem to represent identifiable traits of their explicit subject-matter. One of two contrasting positions is usually taken with respect to such apparently non-referential terms. On the one hand, these terms are declared to be "meaningless" and misleading fictions, serving no good purpose in communication and inquiry; on the other hand, these terms are taken to refer to some realm (variously conceived as the domain of disembodied essences, of private psychic states, or of a transcendental mind), which is not accessible to investigation by the overt procedures of empirical science. The aim of the present paper is to suggest that these alternatives are not exhaustive. I shall consider a class of expressions employed in the natural sci-

[1] A contribution to the symposium "The Relation of Sign to Object Signified" held at the meeting of the Eastern Division of the American Philosophical Association, December 30, 1941, at Vassar College. Professor Ushenko's contribution will appear in the next issue, No. 8.

ences which do not signify anything overtly identifiable in the *explicit* subject-matter of those sciences, even though at first sight they appear to do so; and I shall try to show in broad outline that those expressions nevertheless *do* signify empirically identifiable *modes of inquiry* into that subject-matter. My contention will be that those who have dismissed such expressions as without empirical reference, have searched in the wrong place for "objects" to be signified by those expressions; for I shall argue that by noting the full range of operations relevant to the use of those expressions, the latter can be exhibited as signifying identifiable phases of inquiry.

However, I must first mention several assumptions upon which my own discussion is conducted, and thereby comment briefly on some issues raised by my fellow-symposiasts.

The English word "to signify," as well as its approximate equivalents, are dyadic terms, so that it is conventionally correct to say that "Smoke signifies fire" or that "The word 'Hercules' designates a hero of Greek mythology." But this usage must not blind us to the fact that the relation of signification which holds between a sign and its "object" occurs only in a context which includes an overt user of the sign. It is only elliptically that a sign can be said to signify, since nothing is actually a sign when it is not being so used. Accordingly, anything whatsoever may serve as a vehicle for signification: a wisp of smoke, a gesture, a swelling on a person's face, a sound or mark, or a flash of light; but a necessary condition for its being a sign is that it is *used* as a "representative" for something in accordance with specifiable rules of behavior.

This helps to rule out the hot air.

However, some things are used as signs because they stand in causal relations with the "objects" they signify, independently of their being so used; while some things acquire the status of signs not on the strength of their causal relations, but as a consequence of certain conventions which have been instituted for using those things to refer to "objects." Thus, the first of these two classes of signs includes such examples as the following: a swelling on a person's face, which serves as a sign of dental infection because of various physiological connections between these events; the discharge of a Geiger counter, which signifies the passage of an electron because of certain complicated atomic processes connecting the former with the latter. In general, therefore, the question "What is the relation between a sign and the object signified?," when it is raised about a sign of the first class, can be answered only by one of the specialized scientific disciplines. It will suffice on this occasion to note that while in some cases the causal connection between a sign and its "object" can be established with com-

parative ease, in other cases, for example the discharge of a Geiger counter and the passage of an electron, considerable theoretical equipment is required for unravelling the causal relations.

In what follows, however, I shall be concerned with the second class of signs, and indeed with a special division of it, the linguistic signs. I wish to make three general points concerning them.

(1) Although words are normally not employed to serve as signs because of a causal connection between them and their "objects," causal conditions for the occurrence of words nevertheless exist. These conditions include social, physiological, as well as physical factors, and on occasion may even include the events those words signify. Thus, the appearance of the statement "Stock-market crashes" in the headlines of a newspaper is a consequence of certain financial transactions which preceded it, as well as of the operations of complicated organisms using the instruments of modern publishing technology. On the other hand, the causal conditions for the occurence of the statement "The area of a circle is πr^2" do not include as a factor the complex relations that statement reports. There is, in general, no universal law of nature connecting linguistic signs with their "objects."

(2) Words combined in different ways may be used to symbolize anything whatsoever—the past and future as well as the present, and things accessible to direct experience as well as those that are not. I take this fact for granted; and I can not persuade myself that there is concealed a *general* problem in the fact that we can use language to refer to matters not directly experienced at the time we use it. Indeed, as I see it, the fact which *would* require explanation would be the situation in which signs are used primarily to refer to matters undergoing direct experience. There are, of course, a large number of *specific* questions, many of them unsolved, which are raised by the actual circumstances: for example, problems of physiology, relevant to understanding the bodily mechanisms involved in linguistic behavior; problems of education and psychology, concerning the institution of habits required for the successful use of signs; problems dealing with criteria for identifying and discriminating signs; and problems of discovering and formulating the tacit rules in accordance with which various signs are employed. But to my mind, the fact that our language can be used to refer to things not directly experienced or even directly experienceable, generates a fundamental epistemological problem only if one first assumes (as I do not) that our most assured knowledge is of things in immediate experience.

Mr. Russell devotes a good portion of his latest book to a discussion of such a problem; and if I understand Mr. Ushenko aright,

he also believes that the problem is a serious one. For in his recent *The Problems of Logic* he tries to solve what he regards as a paradox, namely, that "there exists *within* discourse an objective for reference the nature of which is to be something *outside* discourse" (p. 117); and he asserts that it is not enough to recognize the *fact* of an objective or "conceptual" reference, but that it is necessary "to explain how it is possible" (p. 119). His resolution of the paradox and his explanation of how objective reference is possible is effected first, by rejecting "the assumption that language and discourse are identical" (p. 122), and second, by maintaining that "conceptual discourse is not discontinuous with extra-linguistic actuality" (p. 123). His conclusion is that no paradox of self-transcendence arises if

> discourse can be in contact with actuality, for then one might reach the latter without leaving the grounds of the former. . . . Where discourse goes beyond language, elements are found which belong at once to conception and to external reality. [P. 123.]

I am far from confident that I have understood either Mr. Ushenko's problem or his solution; and the following brief comments on his statements may, after all, not be germane to his intent. However that may be, Mr. Ushenko nowhere explains what he understands by "discourse"; but the following senses of the term are possible. The word may designate a language (this is Mr. Ushenko's "pure discourse" of page 123); it may designate various operations of thought, such as conceiving, judging, and remembering, in addition to the overt use of a system of artificial signs; it may be employed synonymously with "universe of discourse," and thus signify whatever is discoursed about or experienced in some other way; or it may signify that phase of subject-matter which in some fashion or other is "directly presented," and also the various operations of reflection upon what is thus immediately experienced. If Mr. Ushenko's use of the term "discourse" coincides with any of these senses, however, it is not clear what the point of his paradox is. For if "discourse" signifies a language, or even the more inclusive operations of reflective thought, then I fail to see that what the language is *about* exists *within* language, except in those relatively rare cases when we happen to be talking about some part of language. Again, if "discourse" signifies some subject-matter under discussion, I can detect no paradox; for now there is no objective for reference whose nature is to be some thing *outside* of that subject-matter. And finally, if "discourse" denotes what is directly presented together with the various operations of reflection upon this matter, I can see nothing paradoxical in the fact that something which exists within

a field of presentation may also exist outside of it—though clearly whether it does exist "outside" this field is not settled by noting that it exists within it, and is a question of physics and history and not of logic.

Mr. Ushenko's "theory" of objective reference seems to me so wrong that I find it difficult to believe he means what he says. For he *says* (in the draft of his paper which I have seen) that objects of reference "are *bodily* present within statements." And he also declares (in that same draft) that when we analyze the statement "I am looking for a stamp" so as to yield the statement "There exists an x such that x is stampish and I am looking for x," the objective for reference is the *variable "x."* But even if we accept Mr. Ushenko's "analysis" of the first statement, it will be evident that although we may *use* a variable in the second statement, it is not the *variable* which is the objective of reference.

But in any case, whatever be the point of Mr. Ushenko's paradox and however he may "resolve" it, it seems to me that he too must take for granted that our terms *do* have objective reference. To insist, as he does, that "conceptual discourse is not discontinuous with extra-linguistic actuality," is simply to assert that we do reflect upon and experience matters other than the *instruments* of our reflection and experience. And this seems to me precisely where a fruitful discussion of signs must begin. What Mr. Ushenko means by his demand that the "possibility" of objective reference be explained (if, as seems likely, he does not ask for a specification of the physical, physiological, and social conditions under which this happens), I do not know. But in my ignorance I am consoled by the circumstance that after all Mr. Ushenko himself does no more than affirm the fact he tries to explain.

(3) I come to my third general point. The institution of signs for qualities and individuals capable of entering direct experience involves the operation of naming. Again I can not detect a profound problem raised by this operation, although the discrimination of the things named from other elements in the field in which they operate involves quite complicated procedures, whose details frequently escape us. It is evident, however, that were language employed only for matters capable of direct apprehension, much that we ordinarily talk about would no longer be capable of discussion. For the suggested restriction would prevent us from discussing not only such matters as prehistoric and future events, but also features of the physical world studied by the various sciences, such as the behavior of sub-atomic particles or the dynamic properties of familiar bodies (e.g., their energy). Accordingly, it would be stultifying to conform to the dicta of popular

semanticism, such as that for every significant word there must be a referend capable of being directly experienced. Most signs are in fact instituted by establishing *circuitous* connections between them and the "objects" they signify; and, as is well-knewn, these "objects" are explored by using the hypothetico-deductive-experimental techniques of the modern sciences. For example, subatomic entities can not be studied by performing experiments directly upon them, since such experiments are physically impossible; and, in fact, experiments relevant to the theory of subatomic particles are performed with and upon the gross objects of the laboratory. The relevance of these experiments to the properties of these particles, however, is established by performing various *logical* operations upon a system of signs, the theory of those particles, which serves as a representation of the subject under investigation. A *necessary* condition for the institution of signs is that statements containing them have other statements as consequences which can be controlled by experimental observation in gross experience. But to state this as a condition for the significant use of signs in the natural sciences is not equivalent to saying that a sign can be regarded as meaningful only if it stands for something capable of entering direct experience.

In his paper Mr. Weiss also comments on the issue here briefly outlined. He asserts that while "an endless number of conclusions are derivable from any premise . . . all or most of the possible conclusions from such signs must have been antecedently ruled as impossible." He therefore asks: "If the premise is not an adequate guide to the number or kind of conclusions to be derived, what other guide is there but the conclusions themselves?" Mr. Weiss's conclusion is that

> We have and must have antecedent knowledge about the objects we seek to approach through the medium of signs; that is why we can limit the kinds and number of inferences that we draw from those signs.

And on the strength of this he formulates a dilemma:

> If it is true as we have maintained, that we must first know something about the objects of signs in order to designate those objects, we seem to be caught in a dilemma. On the one hand, we must have antecedent knowledge of the objects designated by our signs; yet we designate objects which we have never encountered.

Mr. Weiss's discussion seems to be based on the assumption that objects can be properly designated only if they are first "encountered" (or "directly experienced"); if he does make such an assumption, it is an unsupported one, and in my judgment it is also

a gratuitous one. But, in any case, some of the difficulties he raises, if I understand them, can easily be removed by noting the familiar distinction between the *validity* of an inference and the *truth* of a conclusion reached by it. For if, to use Mr. Weiss's terminology, we perform a "semantical inference" from sign to object, the conclusion may be false even though the inference, controlled by an appropriate leading-principle, is a valid or correct one. And, in general, the truth or falsity of the conclusion will be determined, not by an *antecedent knowledge* of the object, but by the outcome of a *subsequent inquiry*. Indeed, if this were not the case, if antecedent knowledge of the object must always determine whether an inference to it is "proper" or not, it is not clear just what the point would be in using signs and drawing inferences from them.

But Mr. Weiss's "resolution" of his dilemma, for the case that the object "is real though not available for a direct encounter," is equally puzzling. It is puzzling to have him state that we do not get "in contact" with William James by remembering him or reading his books. For how otherwise can we get in contact with that philosopher? And when he says that "we now know that our present data points to him as located at a different time," how *does* Mr. Weiss know this except by using signs? It is of course true —and perhaps this is all for which Mr. Weiss is contending—that every inquiry takes for granted some knowledge which has been won antecedent to *that* inquiry; and this antecedent knowledge may in fact bear directly upon the objects designated by the signs we use. But just what is dilemmatic about the fact that in using signs to acquire knowledge about objects, we do not begin with a *tabula rasa* but work with a funded body of experience? Nor do I understand what question is resolved by his statement that "we can denote absent objects by incorporating in the body of our inferences instructions on the way to use present names . . . so that they terminate in unique situations. . . ." For if "to terminate" is synonymous with "to denote," his formula is an obvious tautology; but if these expressions are not synonymous, it is surely not clear in what sense instructions about the use of names terminate in "unique situations" which, by hypothesis, are not accessible to "direct encounter." It seems to me that the function of signs in reflective inquiry is radically misapprehended if it is maintained that the universal condition for their significant use is that we must be able to engage the objects they denote in a "direct encounter."

II

I now turn to the special theme of this paper.

No one seriously doubts, except perhaps when engaged in epistemological discussions, that names such as "the Empire State Building," predicates like "red" or "malleable," and relation-terms like "taller than," are or may be used (in conformity with familiar if tacit conventions) to denote identifiable things, events, properties, or relations in some segment of the natural world. On the other hand, there are many terms which do not seem to signify anything in nature, even when they occur in statements which appear to make them do so. It is difficult, indeed, to separate sharply those terms which would generally be admitted to signify "objects" from those which would not be so regarded. Whether such a distinction is made at all, and where the line is to be drawn, obviously depend on what sort of things are taken to be *in* nature independently of human activities; and this in turn will depend in part upon what *method* is accepted for determining what is and what is not in nature so conceived, and in part upon the language used for describing nature's content. But although the distinction is a fluid one, and is drawn differently at different stages of inquiry, there are few who do not make it in some fashion. Thus, it is frequently held that logical words like "not" and "or" do not signify natural relations, that is, relations which hold between segments of the world into which human activities do not enter. Mr. Russell, for example, has recently declared that the propositions expressed by sentences containing such words do not contain any constituents corresponding to them. And plausible arguments can and have been advanced for an analogous conclusion concerning a large class of expressions specific to the theoretical sciences of nature—expressions such as "the instantaneous velocity of Mars," "the density of a body at a point," "a period of π seconds," or "a distance of $\sqrt{2}$ feet." Even if one disagrees on the appropriateness of the examples cited, provided that at least some terms of speech are taken to designate no natural "object" (in the sense indicated), the question whether a given expression serves as a surrogate for an element of the natural world is a matter for detailed inquiry to settle; such an inquiry can not be evaded by the dictum that since the expression is used in statements which are about natural subject-matter, it also must refer to some element in the latter.

I wish first to argue that there is in fact a large class of expressions employed in physical science, namely, those which assign real-number values to the magnitudes of physical properties, which do not signify empirically identifiable traits in the explicit subject-

matter of physics. As is well-known, differential coefficients occur in statements about such things as the magnitude of velocities, areas, masses, and other properties of bodies. On the one hand, however, a differential coefficient is defined as the limit of an infinite sequence of rational numbers; on the other hand, the phrase "velocity of a body" is ordinarily employed to refer to the rate of change of a body over finite distances. Accordingly, the phrase "the instantaneous velocity of Mars," when strictly interpreted, must be taken to refer to the limiting value of an infinite sequence of velocities, taken over an infinite sequence of overlapping distances which converge to a point. But if we now assign a numerical value to the instantaneous velocity of Mars at a given time, we are predicating a property to Mars which, on the basis of the ordinary use of the term "velocity," it could not possibly have. The expression "the instantaneous velocity of Mars" therefore seems to denote nothing in the heavens. None the less, it would be rank folly to throw out the expression as "meaningless." The important question is *how,* that is, in accordance with what rules, that phrase is employed in the context of physical research.

I wish to outline an answer by considering an example analogous to, but technically simpler than, the expression "the instantaneous velocity of Mars." Suppose we are told that the distance between two given marks or "points" is equal to $\sqrt{2}$ feet. How is this statement to be construed? We must recall that in performing an actual measurement of a distance, instruments are employed (e.g., a yard-stick) which are calibrated either by comparing them with a standard set of calibrations or by performing certain fundamental calibrations upon them. In either case, the calibrations are the end-products of procedures which must terminate after a finite number of steps; and as a full examination of these procedures would show, the only numbers required for making the calibrations are the *rational* ones. But since $\sqrt{2}$ is not a rational number, there will be no calibration on the measuring rod to correspond to it. Accordingly, no measurement, no matter how refined, can ever establish the given distance to be $\sqrt{2}$ feet; for every measurement we may make (which will consist of comparing a standard rod with the given points), will yield a rational number and never an irrational one. More generally, experimental measurement does not require the use of irrational numbers. What then, if anything, do statements containing reference to such numbers signify?

One type of objection to the above argument is worth considering here. After all, it may be said, we can determine whether the given distance has the indicated irrational magnitude by comparing it with the diagonal of a square with sides one foot long; for it is

well-known that the diagonal of such a square will be exactly $\sqrt{2}$ feet long. And accordingly, the objection may continue, by generalizing this procedure it could be shown that the signs for irrational numbers do signify empirically identifiable traits in the subject-matter of physics. But the force of this objection depends on two crucial assumptions: (i) that we do possess an instrument, a square body, with whose diagonal a comparison may be instituted; and (ii) that a system of measures has already been established for the diagonal of this square.

It will be evident that the validity of the first assumption rests on our being able to identify certain configurations in the physical world as conforming to the requirements of Euclidean geometry. In particular, certain physical surfaces must first be shown to be Euclidean planes, certain edges of physical objects must be exhibited to possess the properties required of Euclidean straight lines, and certain corners of bodies must be established as satisfying the stipulations for Euclidean right-angles. In brief, the assumption depends on these being adequate warrant for a complicated *physical theory*. But since this theory happens to be one which can not be adequately warranted without measurement, and since the measurements required involve the use of irrational numbers as values of magnitudes, the initial difficulty concerning the empirical identification of distances having such magnitudes has only been postponed and has not been resolved.

The second of the above assumptions raises equally serious questions. For it in fact begs the entire issue as to what is signified in natural subject-matter by the signs for irrational numbers when the latter are taken as measures of distances. It might be said in reply to this, however, that the magnitude of the diagonal of the square is equal to $\sqrt{2}$ feet as a matter of *conventional stipulation*, so that the empirical denotation of the critical phrase can in fact be unambiguously identified. But this reply is only a makeshift, and will not stand examination. An adequate theory of measurement must make consistent the use of irrational numbers (whose denotation we shall for a moment suppose to be fixed by an explicit convention) with the use of rational numbers, when these latter are employed in the customary manner in connection with calibrated measuring rods. Now it is a well-known arithmetic truth that a rational number can always be found which will approximate as closely as we wish to a given irrational one; for example, in extracting the arithmetical square-root of a number we obtain a sequence of such rational approximations. Accordingly, if the diagonal of the assumed square body were measured with a calibrated rod, the value which would be obtained for its magnitude

would always be a *rational* number—no matter how small the subdivisions on the rod may be or how subtly the experiment is conducted. Consequently, if the magnitude of the diagonal is given the value of $\sqrt{2}$ feet on the basis of the conventional decision, and if the diagonal is measured with a calibrated rod in the usual way, *incompatible results* are obtained; the diagonal will have a magnitude which is both a rational and an irrational multiple of a unit length. The difficulty is thus not resolved by fiat.

Nevertheless, although the objection against my contention does not stand up, its consideration does lead to some substantial results. For it is evident from the above discussion that the irrational numbers come to be used as magnitudes of physical distances in terms of *calculations* whose relevance depends on accepting a comprehensive *physical theory* together with the various conventions involved in using it. The point which I wish to make in this paper is simply a generalization of this observation; but this point can be made more effectively if we recall in outline some relevant operations involved in the use of irrational numbers in physical measurement.

Let us ask first under what conditions we would *reject* the statement that the distance between two given marks is $\sqrt{2}$ feet long. We would reject it if, when one end of the rod is brought into coincidence with one of the marks, the other mark falls between two calibrations on the rod such that $\sqrt{2}$ does *not* lie between the two rational numbers corresponding to those calibrations; for example, if the rod is calibrated to tenths of a foot, the statement would be rejected if the second point were to fall into the interval between 1.3 and 1.4 feet. On the other hand, the statement would normally be accepted if the mark in question were to fall into an interval on the rod such that the irrational number lies between the two rational numbers corresponding to the boundaries of the interval; for example, the statement would be accepted if the point were to fall into the interval between 1.4 and 1.5 feet. But the magnitude of the interval between two successive calibrations on an instrument (that is, the sensitivity of the instrument), is in general a function of the state of experimental technology as well as of the specific objectives for which measurement is undertaken. As these techniques and objectives change, so that finer discriminations become possible or desirable, different numerical values would have to be assigned for the magnitude of a physical distance if rational numbers were exclusively used in measurement. Moreover, without irrational numbers the purely mathematical operations required for developing the implications of physical theories would either be entirely impossible or be very much hampered and restricted.

On the other hand, suppose that we wish to formulate the results of experimental measurement in such a way that even when the sensitivity of our instruments is increased, that formulation will be consistent with the individual readings obtained in a series of actual measurements; suppose that in order to make the operations of mathematics more general and powerful their field is enlarged by the adjunction of new mathematical elements to the rational numbers; suppose, furthermore, that we wish to construct our physical theories in such a way that in their explicit formulation all reference is consistently suppressed, in the interest of enonomy and generality, to the specific instruments required to test them. Under these assumptions the rationale for employing irrational numbers to specify the magnitudes of physical properties is clear. For even though rational numbers may suffice for stating the outcome of each *single* experimental determination of a magnitude, if these individual determinations are required to be related as partial tests conducted in a *comprehensive inquiry,* the irrational numbers serve as excellent and practically indispensable means for indicating in a compact way the values obtained in an indefinite series of experimental determinations. On the one hand, therefore, there are good reasons for rejecting the view that statements about irrational magnitudes literally signify properties identifiable in the subject-matter of physics; on the other hand, such statements are shown by an operational analysis to denote the predicted and identifiable results of a *series* of individual experiments conducted in certain ways. Far from being "meaningless," expressions nominally referring to irrational magnitudes are important links in a far-flung theoretical-experimental inquiry.

If this brief analysis is at all adequate to the facts it discusses, the clear conclusion is that there is no simple relation between signs and the "objects" they signify. Indeed, a discussion of the conditions for the significant use of language in terms of an initial assumption that signs and their "objects" are related by some simple correspondence, can easily mislead us to look for those "objects" where they could not possibly be found. This is especially the case in the theoretical sciences; for the signs they employ do not serve in general as surrogates for the manifest properties of their ostensible subject-matter, but frequently function as *means* for *integrating inquiry* by connecting different portions of it. Thus, even when they occur as parts of statements which characterize a given subject-matter, signs often do not signify "objects" *in* the explicit subject-matter, but modes of conducting *inquiries into* that subject-matter.

That this is so will surprise only those who take language out of the context of overt operations of reflective thought. It is not unreasonable to maintain that every language, however much one may try to purify it of such elements, will inevitably contain expressions whose adequate understanding requires a consideration of the *activities of those who use that language* as much as it involves a reference to the ostensible subject-matter of that language. The conception of language as a mirror of existence, in the sense that the articulation of adequate discourse must have a structure identical with the order and connection of things, must therefore be judged as an over-simplified account of the relations between language and its subject-matter. Ever since Duhem wrote on the subject, it has become a common-place to observe that single, isolated statements in the sciences can not be put to a definitive, crucial test, since it is only a more or less inclusive body of knowledge which can be so tested. It is not yet a common-place to recognize that not every portion of discourse denotes identifiable features in its explicit subject-matter, although an inclusive system of discourse may formulate and represent definite and identifiable things and processes in it.

Because of this characteristic of language, operational analysis of what language signifies seems to me the most fruitful way of performing critiques of abstractions. If the distinctive philosophic task is that of criticizing abstractions, a philosopher is worthily employed when he studies the operations or behaviors, both overt and symbolic, which are involved in using language.

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BOOK NOTES

Filosofía de las ciencias. Teoría de la relatividad. DAVID GARCÍA BACCA. México: Editorial Séneca. 1941. 295 pp. $2.30.

This volume is recorded as the first of its kind in the Spanish language. Instead of presenting a philosophical interpretation of the theory of relativity *à la* Bergson, Cassirer, Schlick, Driesch, Russell, and others, Professor Bacca selects some fundamental texts on the topic from the pen of Lorentz, Einstein, Minkowski, Weyl, etc., writes a comprehensive historical introduction to them, and adds some illuminating notes and comments to the body of the now classic papers. The argument is that, granting the philosophic implications of the theory of relativity, it is nevertheless something independent of any philosophic system. The book is

written "from the point of view of general culture" with the object of complementing the specific tasks of the physicist and the philosopher. The author calls his work an *"experimento,"* but it is chiefly an experiment in popularizing, attempting to bring the Special and General Theory of Relativity to the reach of all. Even the incomparable Mr. Einstein suffers at times from such "exaggerated optimism." *Caveat lector!*

In *Invitación a filosofar,* reviewed in this JOURNAL,[1] Bacca compared philosophy to the art of music; in the present volume, modern science is compared to the art of architecture. Modern physics is not a "natural science," but an experimental "art." The great Galileo was sadly mistaken in thinking that the Book of Nature was written in mathematical terms, which meant that the mathematical alone is constitutive of reality. This "categorial identity" was essentially the error of classical physics, *"aufgehoben"* by the general tendency of the new physics. According to Bacca, the attentive reader of the history of physics must arrive at the following conclusion: there is an *"inconexión esencial"* between the real and the mathematical-logical. From the positive side, this conclusion means that reality has no specific essence or form, but is a *"materia-masa"* which furnishes the human mind the "material" for ideal or logical constructions. Kant tackled this problem from the epistemological point of view, and "Kant and Kant alone has given the solution."

The author credits Einstein with making the first "categorial knot" in physics, which is the fusion of space and time into space-time. Einstein is telling us, so to speak, that henceforth we should not look at a house from the front or the back, which is just appearance without scientific value, but should look at it from all points of view at a time. And since sensible intuition can not do this, it is necessary to renounce it as "the guide of mathematics and physics." Ironically, it is precisely this fusion of space-time which has created so much confusion for those who have been accustomed to look at space and time in isolation. For the relativist, such people have eyes, but do not see, or more correctly, do not see what he sees.

The *Introduction* divides the evolution of physics into three major periods, called respectively "classical intuitionism," "restricted intuitionism," and "abstract symbolism." The first stage, representing classical physics, is based on the convertible assumption, in Spinozistic language, that "the order and connection of ideas is the order and connection of things." Relativ-

[1] Vol. XXXVIII (1941), pp. 667–668.

ity physics, belonging to the second period, is an "intermediate stage between classical intuitionism and modern symbolism." It is a type of "*formalismo restringido,*" whose assumption is that *the* order and connection of things is, at each moment, no more than *one of the* specific kinds of order and connection of ideas. In the "immediate rationalism" of classical physics, the Spinozistic proposition is convertible; in the "mediate rationalism" of relativity physics, it is not.

The culmination of "restricted formalism," according to Bacca, is Planck's quantum theory, which makes a radical break with classical and relativity physics. For the latter two, the world of things (the real) is "essentially subordinate" to the world of ideas (the ideal or the possible). On the contrary, the former holds that the real is related not to the possible, but to the "probable." The key proposition of quantum physics is thus: the order and connection of things is *probably* the order and connection of ideas.

The general tendency of today's theoretical physics is towards "abstract symbolism," which is characterized by the stubborn attempt "to break the continuity between the sensible figurations of the geometric, on one side, and the algebraic and logical, on the other; and this in all the orders and not just in some cases, as the relativity and quantum theories do. From this point of view, abstract symbolism is a direction of modern physics, not a scientific fact, established and concluded." In the next volume of this series, devoted to the quantum theory, the author expects to shed more light on the brave new world which the "architectonic art" of physics is building for the future.

P. R.

Nuevos prolegómenos a la metafísica. ANGEL VASSALLO. Buenos Aires: Editorial Losada. 1938. 216 pp. $3.00 mon./arg.

Angel Vassallo is an Argentine philosopher whose intellectual roots are buried deeply in French thought. Maurice Blondel, "one of the keenest French philosophers of our day, and perhaps the most profound and original of them," has been his special inspiration and point of departure. No other single book has exerted more influence upon his way of thinking than Blondel's *L'action.* The above volume, a collection of recent essays and lectures, shows decisively that the philosopher from Aix has a good disciple down Argentine way.

The "New Prolegomena to Metaphysics," as a title, might easily be construed as an ambitious effort to outdo Kant; but what

should be implied from the title is that Professor Vassallo is not satisfied with Kant's solution to the problem of metaphysics. Kant, it is admitted, was to be sure on the right track as far as he went; but he permitted the rationalism or "*intelectualismo,*" of which he was an avowed enemy from the start to get the best of him in the end, thereby failing to reach the goal. Following closely the lead of Blondel, the author suggests that the problem can be solved only by a "conversion of metaphysics into ethics."

In the essay on Descartes, there is a "short meditation," which though "very schematic" at present is a manifest expression of Vassallo's own thinking. Descartes is credited with having taught philosophers "to begin from consciousness." Now, according to the author, there are four basic ways of beginning from scratch, so to speak.

The first three ways—realism, Kantian criticism, absolute idealism—all suffer from some difficulty or other. Gabriel Marcel, another important French influence, attacks idealism on the ground that it ignores "the *personal* in all its forms, ignores the *tragic,* denies the *transcendent* and tries to reduce it to expressions which do not recognize its essential traits." Realism is ruled out as naïve, and the critical philosophy is analyzed as ultimately uncritical.

Returning to the Cartesian point of departure, whose full consequences Descartes himself failed to appreciate, Vassallo concludes that "the correct way" of beginning from consciousness is not to conceive this basal category as a "receptacle of apodictic assertions" or as an "absolute logos," but as the "*unhappy,* needy awareness" of an "imperfect, *finite* being." In short, the proper beginning is not *from consciousness* ("*desde la conciencia*"), but *consciousness from* ("*conciencia desde*"), the tragic sense of finitude.

In the reviewer's opinion, what the author must still do is to elaborate clearly the implicitly intimate relation between the problem of "converting metaphysics into ethics" and the problem of "the ontological status of finitude." Whatever solution may be forthcoming from Vassallo's sensitive and interesting pen, the suspicion remains that his *Weltanschauung* is "human, all too human," a product of an anthropomorphic predicament.

P. R.

Spinoza. Su vida. Su época. Su obra. Su influencia. Tomo I—*La vida de Baruj Spinoza.* León Dujovne. (Monografías Universitarias, Tomo VI.) Buenos Aires: Instituto de Filosofía. 1941. 305 pp. $6.00 mon./arg.

This biography of Spinoza constitutes the first volume of a "global work" devoted to the philosopher from Amsterdam; the remaining three volumes will concern themselves respectively with the spiritual circumstances of his epoch, the exposition of his thought, and its historical influence.

The author's reason for attempting such a large undertaking is the lack of an *"obra global"* on Spinoza. The argument is that, although there are numerous erudite studies of particular aspects of his system in various languages, there are hardly any "general works which comprise the distinct problems and manifestations which Spinoza raises in the history of modern thought." Leon Dujovne makes this claim with full knowledge of the voluminous bibliography on Spinozism, which he employs as material for his synthesis.

The author is well aware of the difficulty of reconstructing the life of a philosopher, whose "only dramatic episode" was the expulsion from the synagogue by the rabbis of Amsterdam. Yet, in spite of this paucity of dramatic episodes, he delineates the formation of Spinoza's personality with painstaking dexterity, and helps us to see better the philosopher by portraying the man.

P. R.

Investigación sobre el entendimiento humano. David Hume. Tr. por Juan Adolfo Vázquez. Buenos Aires: Editorial Losada. 1939. 224 pp. $3.50 mon./arg.

The *Biblioteca Filosófica,* edited by Francisco Romero and published by Losada in Argentina, has undertaken as one of its projects the translation of philosophical classics into Spanish. This careful translation of Hume's *Enquiry concerning Human Understanding* by Señor Vázquez is the first to appear of the famous trio of modern British thought. Professor Risieri Frondizi has since published a fine translation of Berkeley's *Principles* with notes and an introduction. We expect soon from the same *Library,* to complete the trio, an edition of Locke's *Essay.*

Professor Romero writes a fitting introduction to the translation, entitled *"Hume y el problema de la causalidad."* The rea-

son for the title is obvious. His main point is that one can not "approach the enigmas" of the problem of causality without consulting Hume's work. Romero credits the Occasionalists as the immediate predecessors of Hume's "empiricist" and "psychologist" theory of causality, and traces it back to the Moslem Algazel of the eleventh century and to Nicholas of Autrecourt, "the medieval Hume."

The translator prefaces his work with a very useful bio-bibliographical chronology of Hume's life, with corresponding cross references to English and French thought. Thus we can see at a glance, for example, that in the same year that Hume's *Enquiry* appeared, namely 1748, Montesquieu and Lamettrie brought their masterpieces to light.

P. R.

OTHER NEW BOOKS AND JOURNALS

Graves, Alonzo: The Eclipse of a Mind. New York: The Medical Journal Press. 1942. xii + 722 pp.

Neuman, Abraham A.: Cyrus Adler. A Biographical Sketch. New York: The American Jewish Committee. 1942. 233 pp.

THE PHILOSOPHICAL REVIEW. Vol. LI, 2. Conviction and Tolerance: *R. A. Tsanoff.* Materialism in Democracy—Democracy in Culture: *E. E. Ericksen.* Cultural Relativism and Science: *Grace A. de Laguna.* Proceedings of the American Philosophical Association. Discussion—Concerning Professor Bogholt's Criticism of my "Disposal of Naturalism": *C. J. Ducasse.* Identity and Difference: *Barnett Savery.*

THE JOURNAL OF AESTHETICS AND ART CRITICISM. Winter 1941–1942, Number 4. The Art Museum and the American Scene: *J. D. Forbes.* The Primitive: *Irena Piotrowska* and *Michal Sobeski.* Creative Experience in Science and Art: *Max Schoen.* The Object of Aesthetics: *F. M. Gatz.* The Symbolic Function of Aesthetic Terms: *Max Rieser.*

REVIEW OF PHILOSOPHY AND RELIGION. Volume Ten, Number Four. The Sympathetic Induction of Emotions: *P. S. Naidu.* The Self and Aesthetic Experience: *S. S. Raghavachar.* Living (Polar Opposites: Spirit and Matter): *Bertram Keightley.* The Meaning of Anirvacaniya in Sankara: *N. Kishore Devaraja.* The Road to Truth: *A. N. Krishna Aiyangar.*

NOTES AND NEWS

To the Editors of the JOURNAL OF PHILOSOPHY:

Professor Glenn R. Morrow has published a statement (JOURNAL OF PHILOSOPHY, February 26, 1942), in connection with the Dictionary of Philosophy, edited by D. D. Runes. This statement signed by ten of the seventy contributors contains certain definite misinformation which, in all fairness to the Editor and his collaborators, should be corrected.

First, three of the persons who signed the statement referred to have not contributed at all to the Dictionary, although they promised to do so.

Second, all persons whose names were listed as contributors have received a full set of proofs of their entries. The persons listed originally as associate editors have received galley and page proofs of the whole volume, which they have returned to us with corrections.

Third, these corrections were carefully studied by the Editor and used as a basis for revision in accordance with his best knowledge and experience, not without however consulting in each and every instance specialists in the field. In doing so the Editor exercised the ancient prerogative of final decision.

Fourth, a late attempt has been made by a small group of contributors and outsiders to influence the judgment of the Editor by insisting that the final revision be left in the hands of this self-appointed Committee. This small group endeavored to obtain the signatures of all seventy contributors to their statement, in which attempt they have apparently utterly failed.

S. F. FREDERICKS,
Manager, Philosophical Library, Inc.

To the Editors of the JOURNAL OF PHILOSOPHY:

Mr. Fredericks asserts that our statement contains definite misinformation, but he fails to cite a single instance of it. All who signed the statement are persons whose names were used in advertisements of the Dictionary, whose professional reputations have presumably helped its sale, and who felt obliged to make a public disavowal of any editorial responsibility for the work as it stands, together with a disavowal of responsibility for their own individually signed articles, in so far as these contain insertions not authorized by the author. Why we felt it necessary to make this public statement should be evident to any one who has examined the Dictionary and compared it with similar works of reference in other fields.

We may add that an inquiry into the methods used by Mr. Runes in editing and publishing the Dictionary is now being made by a committee of the American Philosophical Association.

EDGAR S. BRIGHTMAN,
ALONZO CHURCH,
GLENN R. MORROW.

The Thirty-seventh Annual Meeting of the Southern Society for Philosophy and Psychology will be held at Nashville, Tennessee, April 2–4, 1942. The papers to be read at two philosophy sessions are as follows: (9:00 A. M., April 3) "The intelligibility of matter" by *L. J. Eslick;* "Some implications between religion and democratic equality" by *K. K. Berry;* "The nature of the event" by *L. O. Kattsoff;* "The postulate of an impoverished reality" by *Iredell Jenkins.* "The use and abuse of words" by *H. N. Lee;* "Dewey's substitute for natural law" by *R. W. Browning;* "The nature of systems" by *H. J. Duerr;* (2:00 P. M., April 3) "Symbolic tonality and the individual" by *P. A. Comer;* "A philosophic study of morale" by *R. E. Creegan;* "The fundamental postulate of the social ethics of Hostos" by *M. S. Harris;* "From normative science to situation ethics" by *F. W. Meier;* "The *City of God* and the democracy of the future" by *A. F. Liddell;* "Maritain: A Quixote or a Socrates?" by *Gerard Hinrichs.* On the evening of April 3, Professor Fritz Marti will give the presidential address, "The College, Religion, and Philosophy." On April 4 in the morning there will be a joint session of the two sections with the following papers: "Basic postulates neglected in the application of standard parameters to empirical samples of biotic data" by *C. P. Heinlein;* "Universals and immortality" by *R. L. Patterson;* "Psychology and epistemology" by *H. C. Sanborn;* "Modern science and the exclusion of teleology—The contribution of Descartes" by *A. G. A. Balz.*

The Second American Congress for Aesthetics will be held in Washington, D. C., under the auspices of the Catholic University of America on April 16, 17, and 18, 1942. Information may be obtained from the president of the Congress, Dr. Felix M. Gatz, University of Scranton, Scranton, Pennsylvania.

Professor T. V. Smith of the University of Chicago has been appointed to deliver the Weil Lectures on citizenship at the University of North Carolina, May 5–7, 1942. His subject is "Democratic Discipline."